

REMARKS:

This Response is being filed to the Office Action dated February 11, 2003. Claims 4-42 are pending. Applicants herein formally cancel Claims 11-18 and 36-38, which were withdrawn in response to a Restriction Requirement issued on October 1, 2001. Claims 11-18 and 36-38 are cancelled without disclaimer or prejudice to Applicant's right to pursue the subject matter of these claims in a future divisional application. Applicants herein also cancel Claims 4-6 without disclaimer or prejudice to Applicants' right to pursue the subject matter of these claims in a future continuation application.

The substitute specification filed September 23, 2002 is objected to because the first page is numbered as page 2 instead of page 1.

The application allegedly fails to comply with the requirements of 37 C.F.R. § 1.821-1.825 because a sequence identifier is missing from Claim 8.

Claims 31-35, 39 and 40 are objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claims 4, 9-10 and 19 are objected to as containing a variety of informalities.

Claims 4-10, 19-30 and 41-42 are rejected under the first paragraph of 35 U.S.C. § 112 as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. Specifically, the Examiner maintains that the claims are broadly drawn to a multitude of DNA molecules that encode androctonine, defined as any peptide produced by *Androctonus australis*, while the specification only describes one such coding sequence (SEQ ID NO:1).

Claims 4-10, 19-30 and 41-42 are rejected under the first paragraph of 35 U.S.C. § 112
NY02:448343.1

because the specification, while enabling for a nucleic acid encoding the androctonine of SEQ ID NO:2, a chimeric gene, vector, transformed bacterium and plants comprising this nucleic acid, and a method of transformation of tobacco with the nucleic acid, does not reasonably provide enablement for nucleic acids encoding androctonine when broadly defined as any peptide produced by *Androctonus australis*. The Examiner also maintains that the specification does not provide guidance for transformation of yeast, fungus or baculovirus, for producing fungal-resistant plants, or for expression of the peptide encoded by SEQ ID NO:1 in the absence of a signal peptide sequence.

Claims 6, 9-10, 19-30 and 41-42 are rejected under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Specifically, the Examiner asserts that Claim 6 lacks antecedent basis for the limitation "the basic amino acids" and that asparagine and homoasparagine are not basic amino acids; that Claim 9 lacks antecedent basis for the limitation "The isolated nucleic acid fragment" and is indefinite in its recitation of the phrases "nucleic acid fragment comprising the nucleic acid encoding...SEQ ID NO:2," and "homologous peptide sequences;" that Claim 19 lacks antecedent basis for the limitation "nucleic acid sequence according to any one of Claims 4 to 10;" that Claim 21 is indefinite in its recitation of "adapted for the transformation of said host organism;" that Claim 27 remains indefinite because the step of regenerating a plant from a plant cell is not written in the gerund form; and that Claim 42 lacks antecedent basis for the limitation "the virus."

Claims 4-6 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kobayashi *et al.* (GenBank Accession No. D21812, 1996) or by Carlson *et al.* (GenBank Accession No. K02672, 1996). Claims 4 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Cheuk *et al.* (GenBank Accession No. AC003981, 1996). Claims 4-6 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated. Claims 10, 19-30 and 41-42 are rejected under 35 U.S.C. § NY02:448343.1

102(b) as being anticipated by Maeda *et al.* (Virology 184:777-780). Claims 10 and 19-30 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ely (WO 95/11305) and by Barton *et al.* (U.S. Patent No. 5,177,308). The Examiner contends that each of these references teach an isolated nucleic acid that is homologous to SEQ ID NO:1.

Applicants respectfully traverse the Examiner's objections and rejections of the aforementioned claims for the reasons set forth below. The substitute specification has been amended to correct the page numbering. Claim 8 has been amended to include a sequence identifier. Claims 7-10, 19, 21, 27, 31, 32, 35, 39, 40 and 42 have been amended in response to the Examiner's comments in the previous Office Actions and in the telephone interview of Thursday, June 19, 2003, and to bring increased clarity to the claims. New claims 43-62 have been added. No new matter has been added by the amendments to the specification or the claims.

Reconsideration of this application in view of the technical amendments and remarks made herein is respectfully requested.

I. Objections to the Specification and the Claims

The substitute specification filed September 23, 2002 is objected to because the first page is numbered as page 2 instead of page 1.

Claims 31-35, 39 and 40 are objected to under 37 C.F.R. § 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claims 4, 9-10 and 19 are objected to as containing a variety of informalities.

In response to the objection to the specification and pursuant to 37 C.F.R. § 1.125, Applicants provide herewith a substitute specification. This substitute specification contains no new matter. Applicants maintain that the filing of this substitute specification is sufficient to overcome the

Examiner's objection to the specification.

In response to the objection to the claims, Applicants herein have amended Claims 31-35, 39 and 40 to remove the perceived multiple dependencies. Applicants herein also have amended Claims 9 and 10 to delete the period from the phrase "SEQ ID NO.:" Claim 4 has been cancelled without disclaimer or prejudice, rendering moot the stated objection. Claim 19 has not been amended, because Applicants do not perceive the word "nucleic" in line 2 of Claim 19, and further because Applicants disagree that the article before "nucleic" in line 1 of Claim 19 is improper. Applicants maintain that these amendments are sufficient to overcome the Examiner's objection to the pending claims.

II. The Application Complies with 37 C.F.R. §§ 1.821-1.825

The Examiner has noted that the application contains sequence disclosures that fail to fully comply with the requirements of 37 C.F.R. §§ 1.821 through 1.825. Specifically, the Examiner notes that the -Asn-Arg-Pro-Tyr- peptide sequence recited in Claim 8 requires a sequence identifier. In response, Applicants have amended Claim 8 to incorporate a unique sequence identifier (SEQ ID NO:17), and submit herein paper and computer-readable copies of a revised Sequence Listing for the above-captioned application. Applicants hereby state that the content of the paper and computer readable copies of the Sequence Listing submitted in accordance with 37 C.F.R. § 1.821(c) and (e), respectively, are the same. Applicants hereby state that the content of the paper and computer readable copies of the Sequence Listing, submitted herewith in accordance with 37 C.F.R. § 1.82(f), does not include new matter. Applicants submit that the application now complies with 37 C.F.R. §§ 1.821-1.825.

III. The Claims Satisfy the Written Description Requirement of 35 U.S.C. § 112, first paragraph

Claims 4-10, 19-30 and 41-42 are rejected under the first paragraph of 35 U.S.C. § 112 as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention at the time the application was filed. Specifically, the Examiner maintains that the claims are broadly drawn to a multitude of DNA molecules that encode androctonine, defined as any peptide produced by *Androctonus australis*, while the specification only describes one such coding sequence (SEQ ID NO:1).

In response, Applicants have cancelled Claims 4-7 without disclaimer or prejudice, mooting the Examiner's rejection of these claims under the first paragraph of 37 C.F.R. § 112. In addition, Applicants have amended Claims 7-10, 19, 21, 27, 31, 32, 35, 39, 40 and 42 as indicated hereinabove. Specifically, Applicants have amended Claim 7 to indicate that the isolated nucleic acid fragment being claimed must encode an antifungal polypeptide comprising the peptide sequence of general formula II. In addition, Applicants have amended Claims 9 and 10 so that those claims are now drawn to isolated nucleic acid fragments comprising SEQ ID NO:1 or encoding a protein comprising SEQ ID NO:2, and complementary sequences thereto.

Applicants maintain that these amendments overcome the rejection of Claims 7-10, 19-30 and 41-42, and respectfully request that these claims be allowed. Applicants further maintain that new claims 43-62 satisfy the written description requirement of 37 C.F.R. § 112.

IV. The Claims Satisfy the Enablement Requirement of 35 U.S.C. § 112, first paragraph

Claims 4-10, 19-30 and 41-42 are rejected under the first paragraph of 35 U.S.C. § 112 because the specification, while enabling for a nucleic acid encoding the androctonine of SEQ ID NY02:448343.1

NO:2, a chimeric gene, vector, transformed bacterium and plants comprising this nucleic acid, and a method of transformation of tobacco with the nucleic acid, does not reasonably provide enablement for nucleic acids encoding a protein of general formula I, other than SEQ ID NO:1, for nucleic acids encoding homologues of SEQ ID NO:2, or for nucleic acids that are homologous to SEQ ID NO:1. The Examiner also maintains that the specification does not provide guidance for transformation of yeast, fungus or baculovirus, for producing fungal-resistant plants, or for expression of the peptide encoded by SEQ ID NO.:1 in the absence of a signal peptide sequence.

In response, Applicants have cancelled Claims 4-7 without disclaimer or prejudice, mooting the Examiner's rejection of these claims under the first paragraph of 37 C.F.R. § 112. Furthermore, Applicants have amended Claims 7-10, 19, 21, 27, 31, 32, 35, 39, 40 and 42 as indicated hereinabove. Applicants assert that the specification does in fact enable one of ordinary skill to make and/or use the invention commensurate with the scope of these amended claims. Thus, Applicants assert that the specification is enabling for an isolated nucleic acid fragment encoding an antifungal polypeptide comprising the peptide sequence of general formula II. Applicants further assert that the specification is enabling for isolated nucleic acid fragments comprising SEQ ID NO:1 or encoding a protein comprising SEQ ID NO:2, and complementary sequences thereto. In light of these amendments, Applicants respectfully request that the rejections of these claims on the grounds that they are not enabled by the specification be withdrawn.

V. The Claims Satisfy the Requirements of 35 U.S.C. § 112, second paragraph

Claims 6, 9-10, 19-30 and 41-42 are rejected under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Specifically, the Examiner asserts that Claim 6 lacks antecedent

basis for the limitation "the basic amino acids" and that asparagine and homoasparagine are not basic amino acids; that Claim 9 lacks antecedent basis for the limitation "[t]he isolated nucleic acid fragment" and is indefinite in its recitation of the phrases "nucleic acid fragment comprising the nucleic acid encoding...SEQ ID NO:2," and "homologous peptide sequences;" that Claim 19 lacks antecedent basis for the limitation "nucleic acid sequence according to any one of Claims 4 to 10;" that Claim 21 is indefinite in its recitation of "adapted for the transformation of said host organism;" that Claim 27 remains indefinite because the step of regenerating a plant from a plant cell is not written in the gerund form; and that Claim 42 lacks antecedent basis for the limitation "the virus."

In response, Applicants have cancelled Claim 6 without disclaimer or prejudice, and have amended Claims 9, 19, 21, 27 and 42 in response to the Examiner's comments and according to the Examiner's suggestions during the Telephone Interview conducted on June 18, 2003. Applicants assert that the claims as presently amended obviate the rejections made under the second paragraph of 35 U.S.C. § 112.

VI. The Claims are not Anticipated

Claims 4-6 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kobayashi *et al.* (GenBank Accession No. D21812, 1996) or by Carlson *et al.* (GenBank Accession No. K02672, 1996). Claims 4 and 10 are rejected under 35 U.S.C. § 102(b) as being anticipated by Cheuk *et al.* (GenBank Accession No. AC003981, 1996). Claims 10, 19-30 and 41-42 are rejected under 35 U.S.C. § 102(b) as being anticipated by Maeda *et al.* (Virology 184:777-780). Claims 10 and 19-30 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ely (WO 95/11305) and by Barton *et al.* (U.S. Patent No. 5,177,308). The Examiner contends that each of these references teach

an isolated nucleic acid that is homologous to SEQ ID NO:1.

In response, Applicants note that Claims 4-6 has been cancelled, mooting the Examiner's rejection of these claims. Furthermore, Claim 10 has been amended so that it no longer recites a nucleic acid sequence homologous to SEQ ID NO:1. Applicants maintain that, in light of this amendment, Kobayashi *et al.*, Carlson *et al.* and Cheuk *et al.* no longer qualify as prior art, because the nucleic acid sequences disclosed by these teachings comprise neither SEQ ID NO:1 or a nucleotide sequence complementary to SEQ ID NO:1.

As for Maeda *et al.*, Ely, and Barton *et al.*, Applicants continue to disagree with the Examiner's analysis of the teachings of these references, especially in light of the amendments made herein. A comparison of the sequence of either the isolated nucleic acid fragment encoding a protein comprising SEQ ID NO:2 or the isolated nucleic acid fragment complementary to a nucleic acid fragment encoding a protein comprising SEQ ID NO:2 with the nucleic acid sequences taught by these cited documents reveals obvious and profound differences. Because they do not teach the protein or nucleic acid sequences recited in the claims as presently amended, none of these references can anticipate the pending claims of the instant application. Applicants therefore respectfully request that the rejections of Claims 10, 19-30 and 41-42 on the basis of 35 U.S.C. §102 (b) be withdrawn.

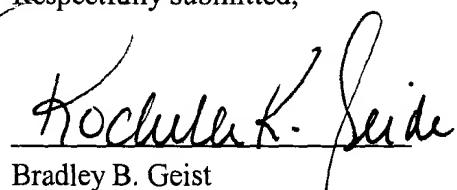
CONCLUSION

Based on the foregoing remarks and in light of the amendments, Applicants submit that the present application is in condition for allowance. A Notice of Allowance is therefore respectfully requested.

Applicants believe a fee of \$410.00 is due with this response for a two-month extension of time as required under 37 C.F.R. §1.17(a)(2). Should any additional fees be required in connection with this response, the Commissioner is hereby authorized to charge Deposit Account Number 02-4377. A duplicate copy of this communication is enclosed.

If a telephone interview would be of further assistance in advancing the prosecution of the subject application, Applicant's undersigned attorney invites the Examiner to telephone at the number provided below.

Respectfully submitted,



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